

PART III

PHYSICAL DESCRIPTION.

Physical Regions of Washington

On the basis of surface features Washington may be divided into eight general regions. Agricultural settlement is influenced by factors of topography, climate, soil, forest vegetation, and water resources distinctive to each of the physiographic regions. Each has become a different type of farming area as settlers have learned to adapt crops and livestock to the conditions, or have improved limitations through drainage or irrigation.

Coastal Plains

A narrow, sandy plain with shallow bays, tidal flats, stream deltas and low headlands lies between the coastline and the Coast Range. It extends from the Columbia River mouth almost to Cape Flattery, being widest and lowest in the Grays Harbor and Willapa Bay districts. The climate is mild and damp with a long growing season, but it is too cool, cloudy and wet for most crops. Originally, this area was covered with heavy forests but much of it is now covered with woodlands. Lumbering and manufacture of wood products is the main industry. Farming is largely livestock and dairying on low uplands and drained areas in the lower Chehalis River Valley. Cranberry growing is important and well-adapted to numerous, boggy areas in the Grays Harbor and Willapa Bay sections. The shallow bays are also used for oyster culture. Fishing is common in the rivers and coastal banks.

Coast Range

The Coast Range is an uplifted area of sedimentary and metamorphic rocks divided into the Olympic Mountains and the Willapa Hills. The Olympics tower to nearly 8,000 feet in a dome-like structure, carved deeply by rivers. These mountains have the heaviest precipitation in the state. Snowfields and heavy forest cover the mountains. Most of the wilderness area is within the Olympic National Forest and Olympic National Park, being managed for recreation, wildlife, and timber. Farm settlement is limited to some foothill river plains and coastal terraces such as the Dungeness and Port Angeles districts along the Strait of Juan de Fuca. Here in the lee of the mountains, rainfall is moderate and irrigation is practiced by some livestock farmers. The Willapa Hill country is wet, heavily forested and carved into numerous narrow valleys. Logging is the main industry, combined with livestock farming in the upper Chehalis River Valley and along the banks of the Columbia River. Wet climate, hilly topography and the difficulty of clearing stump land retards agriculture.

Willamette-Puget Sound Lowland

A broad lowland, described as a trough or valley, lies between the Coast Range and the Cascade Mountains. The northern part is the Puget Sound Lowland which has been glaciated and is occupied by the sea in the lowest sections. The continental glacier reached slightly south of Olympia. Under a warming climate it melted and geologists believe it receded about 25,000 years ago, leaving an infertile plain of moraines and outwash gravels, sands and clays known today as the Puget Glacial Drift Plain. Its rolling surface has numerous lakes and bogs. Most of the major cities--Seattle, Tacoma, Everett, Bellingham and Olympia--have been built on moraines bordering the Sound. Rivers such as the Nooksack, Skagit, Snoqualmie, White and Puyallup

have built up deltas and flood plains over the older gravelly plains. These narrow valleys are more fertile than the older glacial plains and support numerous small dairy, vegetable and berry farms. Most of the gravelly areas are wooded with a second-growth forest and are used for pastures. In the southern part of the Willamette-Puget Sound Lowland, there are two large valleys--the Cowlitz and Chehalis. They drain a low, hilly area with several flat prairies and bottom lands.

Agriculture is handicapped by poor drainage and flooding of the river deltas and plains, by heavy winter rainfall, by cloudy but dry summer, by coarse, gravelly upland soils and by densely wooded land which is costly to clear. Advantages are mild climate and a location close to major markets for farm products such as milk, poultry, and vegetables.

Cascade Mountains

The Cascades are a wide and high topographic and climatic barrier which separates western and eastern Washington. The range is made up of sedimentary, igneous and metamorphic rocks which have been carved by glaciers and streams. High, isolated volcanic cones of lava such as Mt. Adams (12,307 feet), Mt. Rainier (14,408 feet), and Mt. Baker (10,791 feet), appear upon the older Cascade rocks. The Cascade crest varies between 10,000 and 3,000 feet and is higher and more rugged in northern Washington. Roads and railroads have been built across its lower passes in central and southern Washington. The Columbia River has cut a deep gorge and the lowest pass through the barrier. The western slope is wet and heavily forested with Douglas fir. The eastern slope is drier with a less-dense pine forest. Nearly all classified as forest land, most of the area is in Federal ownership in five national forests and Mount Rainier National Park. Tree fruit farming in the eastern slope valleys of Wenatchee, Chelan, Methow, Naches and the Columbia Gorge is most important. Sheep and cattle summer grazing on alpine grasslands is another use. Deep western slope valley bottoms such as the Skagit, Snohomish, Nisqually, Cowlitz and Lewis also contain livestock farms. The area is vitally important as a source of water for irrigation and city drinking water and as a source of timber. Steep terrain, wet climate, short growing seasons and heavy forest vegetation are main handicaps for agriculture.

Columbia Basin

A low plateau of old lava rocks covered with stream and wind-deposited soils extends in a series of plains, ridges, coulees and hills from the Cascades to the eastern Washington border. The area is basin-like in structure, being higher around its margins and sloping inward to low and level central plains. It has been sharply eroded by the Columbia River and its interior tributaries, the Snake, Yakima, Palouse and Spokane Rivers. The basin has sub-areas created by crustal movements and erosion.

A. The Yakima Folds are a series of hilly ridges extending from the Cascades eastward into the lower part of the basin. The Yakima and Columbia Rivers have cut gaps through the ridges, and built up plains in the troughs between them. The rich, alluvial plain of the Yakima River is an important irrigated valley.

B. The Waterville Plateau is a tableland of thin soils overlaying basaltic rock at an elevation of 2,500 to 3,000 feet. It has gorges cut by the Columbia River and ancient glacial outwash streams once flowing in Moses and Grand Coulees. It is too high for irrigation and is used for dryland grain and livestock farming. The high plain is often called the Big Bend Country.

C. The Channelled Scablands are a belt of dry terrain carved by ice-age rivers into a series of coulees. Bare rock is exposed in the coulees. Small plateaus between the old river channels have thin soils used for dryland farming. The Grand Coulee of this region has been developed into a major irrigation reservoir.

D. The Palouse Hills consist of fertile deposits of wind-blown soil overlying basaltic lava flows. After being deposited in large dunes, the formation was reshaped by streams into an intricate pattern of low, rounded hills which are tilled for wheat, barley and legumes. The hills receive 16 to 25 inches of rainfall annually and are composed of deep, porous and fertile soils. It is one of the richest farming areas of the Pacific Northwest.

E. The Central Plains are low and relatively level expanses of soil, deposited by old streams crossing the Channelled Scablands and later by the flooding of the Yakima, Columbia, Snake, and Walla Walla Rivers. Climate is desert-like (6-12 inches of precipitation per year). The lower lands of the area, the Quincy and Pasco Basins and the Walla Walla Valley, are irrigated. The Quincy Basin is a new irrigation area watered by Grand Coulee Dam.

Agricultural handicaps in Columbia Basin regions are mainly found in its dry continental climate. Large irrigation systems built since 1900 have overcome much of the need for water on rich valley and basin soils. Dryland farming in higher areas is practiced widely, although occasional variations in rainfall, lack of snowfall, winterkill, water and wind erosion inflict damage to field crops and to livestock ranges.

Okanogan Highlands

A portion of the Rocky Mountains, consisting of well-eroded old granites, lavas and sedimentary rocks extends across north-central Washington. These are the Okanogan Highlands, the state's richest mineral area. Summit levels reach 4,000 to 5,000 feet with peaks exceeding 7,000 feet. Prominent north-south valleys are occupied by irrigated tree fruit and livestock farms. These are the Okanogan, Sanpoil, Kettle, and Colville Valleys. The Columbia River gorge through the Okanogan Highlands is occupied by the large man-made lake behind Grand Coulee Dam--Roosevelt Lake. Higher and wetter portions are forested with pine and larch and are managed for timber and for livestock ranges by the United States Forest Service and the Bureau of Indian Affairs. Cold winter temperatures, short growing seasons, dry valley climates and distance from markets are farming handicaps.

Selkirk Mountains

The Selkirks, a range of the Rocky Mountain system, extend into the northeast corner of Washington. The rocks are old mineralized granites and metamorphics reaching elevations of over 7,000 feet. The Pend Oreille River Valley at the base of the Selkirks is an agricultural area of narrow bottom lands settled by livestock farmers. Nearly all of the uplands are in Kaniksu National Forest. While climate is cool and growing seasons are short, the Pend Oreille Valley has an advantage of being closely located to the Spokane metropolitan market area.

Blue Mountains

The Blue Mountains are an uplifted and eroded plateau extending into the southeastern corner of Washington. The strata are mainly ancient crystalline rocks which contain some minerals. The highest point of the mountains in the Washington sec-

tion is Diamond Peak (6,401 feet), located on the divide between the Grande Ronde, Tucannon and Touchet Rivers. These rivers, and the Walla Walla River, have cut valleys into the plateau. Extensive pine forest and grassland areas are in the highlands within the Umatilla National Forest, where rainfall is 30 to 40 inches. The Snake River has cut a deep valley and gorge across the lower parts of the mountains. The area is well developed agriculturally around its northern foothills where wind-blown soils are deep and irrigation systems are used. The Walla Walla and Tucannon Valleys are rich grain, legume and livestock areas of irrigation and dry farming. Grazing is an important use of the highlands by livestock ranchers in the upper valleys.

Physiography of Adams County

Most of Adams County is level to moderately sloping land lying in the Central Plains of Washington's Columbia Basin. In the central and western portion rolling plains of wind-deposited material are interspersed with flat areas where ancient ice-melt rivers from the north deposited sand and gravel. Large level areas are Paradise Flats, Michigan Prairie, and Rattlesnake Flats. Lind Coulee, an old glacial melt-water channel, along with lesser such coulees, cut across the more gentle land to form localized areas of Channelled Scablands terrain. Elevations vary from 800 to 1,200 feet. The lowest area is the irrigated basin around Othello. Grain farms occupy most of the central area. The gentle topography makes it rather easy to use farm machinery.

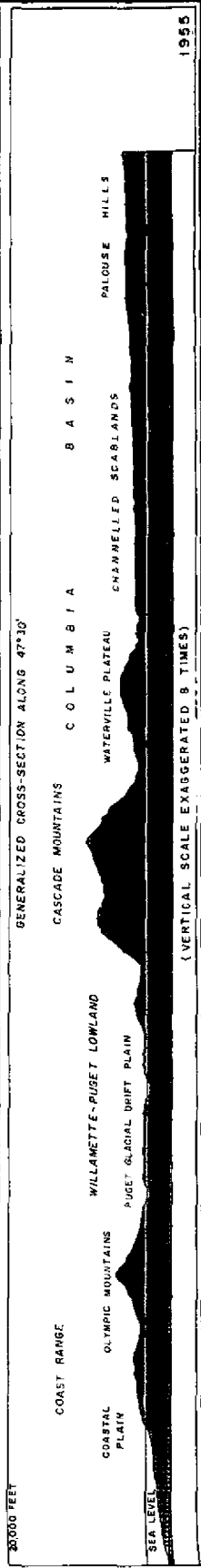
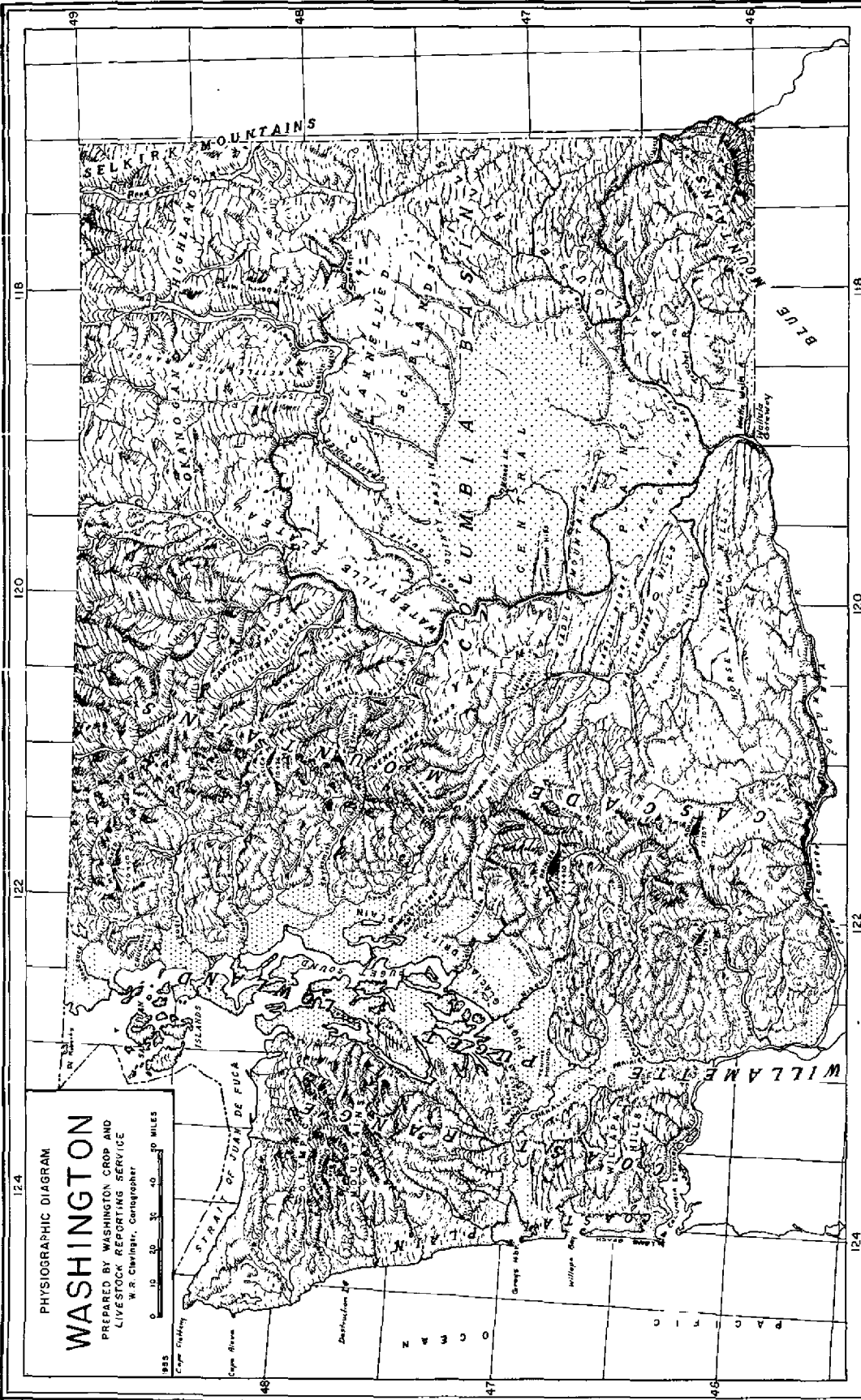
Eastern Adams County, in the Washtucna, Benge, and Cow Creek Valley areas is in the Palouse Hills region. Topography typically consists of large, steep, dune-like hills of wind-deposited soil. The Palouse River and Cow Creek Valleys, bordered by flat river plains, cut through the dune and ridge terrain. Elevations range from 1,040 to 1,843 feet, the highest point being a ridge west of Benge.

The eastern part of the county also shows evidence of glacial stream action. A glacial melt-water channel, once a carrier of large volumes of water southward from Colville Lake down Cow Creek Valley, formed a channelled area, an outwash plain, and some small lakes in the northeast corner of the county. Topography is roughest along the gullies and banks of the Palouse River in southeastern Adams County.

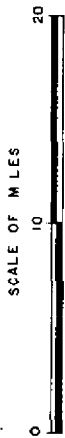
Land Classification and Soils

The Soil Conservation Service's Capability Classification is a grouping of soils that shows, in a general way, how suitable they are for most kinds of farming. It is a practical grouping based on limitations of the soils, the risk of damage when used, and the way they respond to treatment. All soils are grouped into eight major capability classes. Class I contains soils with few limitations, the widest range of use, and the least risk of damage when used. Soils in other classes have greater natural limitations; Classes V through VIII are generally unsuited for cultivation.

Although the 1949 SCS land use capability map shows no Class I land in Adams County, the installation of irrigation systems has resulted in upgrading some cropland. A more recent reference (Washington Conservation Needs Committee, 1962) gives the following acreages by land use capability classes: Class I and II, 378,300 acres; Class III and IV, 520,000 acres; Class V through VIII, 267,000 acres. About 77 percent of the county's land area is in Class I through IV, considered suitable for cultivation.

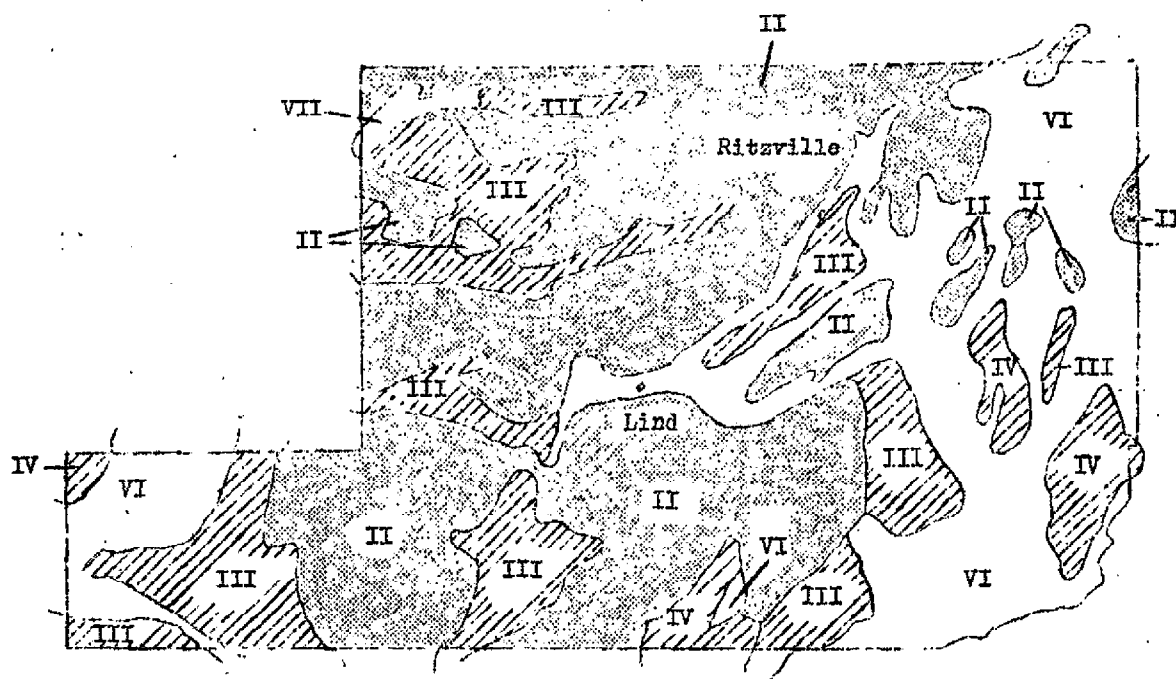


TOPOGRAPHIC DIAGRAM



W. R. CLEVELINGER

- | | |
|---|---|
| <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin-bottom: 5px;">I</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin-bottom: 5px;">II</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin-bottom: 5px;">III</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin-bottom: 5px;">IV</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin-bottom: 5px;">V</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center; margin-bottom: 5px;">VI</div> <div style="border: 1px solid black; padding: 2px; width: 40px; text-align: center;">VII</div> | <p>Very good land with deep, nearly level soil having few limitations.</p> <p>Good land with minor limitations such as gentle slopes, moderately shallow soil, or slight erosion hazard.</p> <p>Moderately good land with major limitations such as steep slopes, shallow soil, or severe erosion hazard.</p> <p>Fairly good land, suitable for occasional cultivation. Severe limitations require careful management.</p> <p>Very well suited for grazing but unsuited for cultivation.</p> <p>Well suited for grazing with minor limitations such as moderately steep slopes or shallow soils.</p> <p>Fairly well suited for grazing, with major limitations such as steep slopes or shallow or droughty soils.</p> |
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Source: U.S. Soil Conservation Service Map: Washington, Generalized Classification of Land According to its Capability for Use, 1949.

Figure 4. Land Use Capability Classes in Adams County.

Annual precipitation gradually increases from west to east and soils show more development. In the western "panhandle" soils are in the sierozem zone, formed under 5 to 10 inches of precipitation. The upper layer (A horizon) is typically 3 to 6 inches thick. It is low in organic matter, with a thin surface crust. The next layer (B horizon) is one of clay accumulation, is darker than the upper layer, and typically contains lime.

Approximately two-thirds of the county's land area, consisting of the central portion, is in the brown soil zone. These soils were formed under 8 to 12 inches of annual precipitation. The A horizon is generally thicker than for sierozems (5 to 10 inches) and grayish brown when dry. The B horizon is commonly one of clay.

Chestnut zone soils, formed under 10 to 15 inches of precipitation, are found in the county's eastern end. The A horizon is thicker than in the previous two zones, from 7 to 15 inches. The B horizon commonly contains clay and is brighter than the A.

Rich loess (wind deposited) soils make up the lands used for growing wheat and other grains. Wheeler is a wide-spread series extending in a belt from Hatton northward to the Lincoln County line. These fine textured loams produce fair yields of wheat. Ritzville loam, another major wind-deposited, wheat-growing soil series, is found in a wide north-south belt in eastern Adams County. Important cropland soils in the Othello irrigated basin include sandy soils such as the Ephrata and Burke. These are productive when irrigated. Wind erosion is the major management problem when natural grass and shrub vegetation is broken by cultivation.

Climate

Adams County's climate is largely a continental, desert type. Precipitation is low, summers are warm and sunny, winters are cool. The climate is fairly uniform over the county due to the essentially uniform elevation.

Mountain ranges surrounding the Columbia Basin influence its climate. The Rocky Mountains and ranges in southern British Columbia give protection from most severe winter storms moving southward across Canada. Occasionally, cold air flows into Washington's interior through north-south valleys near the Canadian border. Such air drainage from severe storms sometimes produces several days of low temperatures in mid-winter or damaging late spring or early fall freezes.

The Cascade Mountains west of the Basin rise to 4,000 to 7,000 feet with peaks over 10,000 feet, forming a north-south topographic and climatic barrier. Prevailing westerly winds in fall and winter bring a flow of mild, moist air into western Washington. Cooling and condensation occur as the air rises along the Cascade slope, resulting in heavy precipitation along the western slope and near the summit. The air becomes warmer and drier as it descends the eastern slope and moves inland, causing annual precipitation to decrease from about 100 inches near the summit of the Cascades to less than 10 inches at lower elevations of the Columbia Basin.

Annual precipitation is closely related to elevation in Adams County, being progressively greater from the south-western corner to the eastern end of the county. Othello, at 1,110 feet, receives an average of 8.16 inches per year. Ruff (1,440 feet), in Grant County near the northwestern boundary of Adams County, receives 9.62 inches. Annual precipitation at Lind Experiment Station (1,625 feet) in central Adams County averages 10.11 inches. Sprague (1,925 feet), in Lincoln County

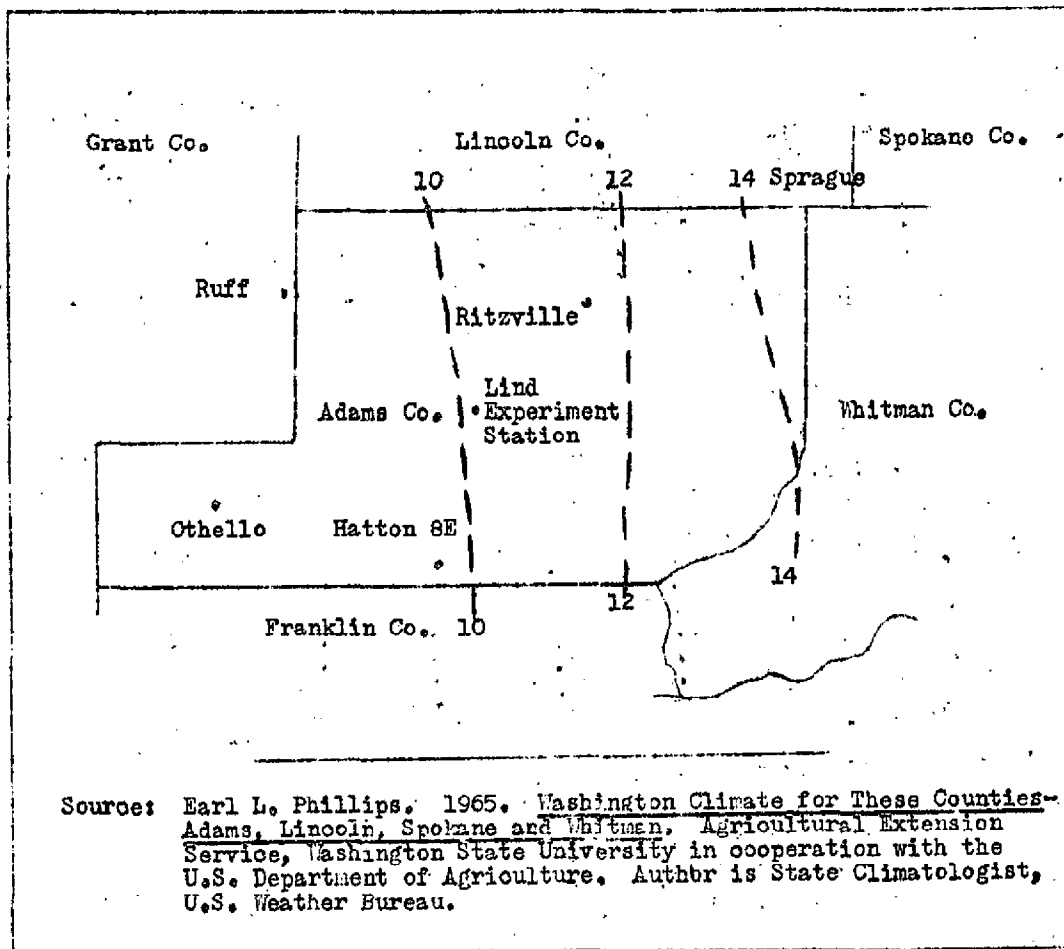


Figure 5. Distribution of Mean Annual Precipitation in Adams County. Dotted lines connect points of equal precipitation.

near the northeast corner of Adams, receives 14.70 inches. Precipitation typically increases in the fall to a peak in winter months, decreases in spring, increases with shower activity in May and June, and then drops off sharply in July and August. It is not unusual for a month or six weeks to pass without measurable rainfall in mid-summer.

Snow may be expected from early December until March. Snowfall is usually light in western Adams County, reaching a depth of 4 to 8 inches at Othello in an average winter. Greater depths are common at higher elevations farther east. Snows often are melted rapidly by rains and warm Chinook winds, sometimes causing severe soil erosion. Mixing of moist, marine air with cold continental air causes considerable cloudiness and fog in winter; the number of cloudy days each month decreases rapidly in spring, from about 20 in mid-winter to 2 or 3 in mid-summer. Strong westerly winds associated with rapidly moving spring storms sometimes cause considerable erosion and blowing dust.

Temperatures often exceed 100°F. in summer and dip to the minus 20's in winter. The highest temperature recorded in the county in recent years is 111°F. at Lind Experiment Station. Lowest is a minus 30°F. at Hatton. Days are warm and nights

Table 6. Average Monthly Precipitation (Inches), Adams County.

Station	Elev. (ft.)	Period of Record	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Hatton SE	1,428	1931-60	1.22	.92	.87	.70	.79	.86	.21	.22	.49	1.13	1.22	1.31
Lind Exp. Station	1,625	1931-60	1.13	.97	.81	.67	.85	1.04	.26	.30	.57	1.11	1.12	1.28
Othello	1,110	1942-60	1.23	.82	.62	.51	.72	.79	.20	.12	.42	.94	.87	.92
Ritzville	1,825	1931-60	1.44	1.04	1.01	.74	.94	1.15	.29	.33	.65	1.19	1.38	1.51
Ruff 3SW	1,440	1918-55	1.19	.84	.72	.50	.86	1.08	.39	.20	.44	1.00	1.03	1.37
Sprague	1,925	1931-60	1.81	1.32	1.32	.94	1.16	1.14	.33	.42	.83	1.55	1.84	2.04

Source: U. S. Weather Bureau, Climatological Office.

Table 7. Averages and Extremes in Precipitation (Inches), Adams County.

Station	Elev. (ft.)	Period of Record	Average Annual	Greatest Annual	Least Annual	Greatest Monthly	Least Monthly	Greatest Daily
Hatton SE	1,428	1931-60	9.94	15.96	5.03	4.21	0	1.14
Lind Exp. Station	1,625	1931-60	10.11	19.22	5.16	5.86	0	1.69
Othello	1,110	1942-60	8.16	12.61	5.65	3.16	0	1.24
Ritzville	1,825	1931-60	11.67	16.71	6.59	6.61	T	1.46
Ruff 3SW	1,440	1918-55	9.62	21.01	5.37	4.51	0	2.20
Sprague	1,925	1931-60	14.70	23.50	9.07	6.10	0	1.38

T = Trace; not measurable.

Source: U. S. Weather Bureau, Climatological Office.

cool in summer, with July temperatures ranging from average maximums around 90°F. and average minimums in the low 50's. Winter temperatures show less daily fluctuation. January minimums average about 20°F. and maximums, 10 to 15 degrees higher.

The growing season (average number of days from the last 32°F. in the spring to the first such occurrence in the fall) ranges from 135 days at Hatton to 151 days at Othello. Ruff and Sprague, in Grant and Lincoln Counties, have seasons averaging less than 130 days. Growing seasons are shorter and killing frosts come earlier at higher elevations in the eastern part of the county. Frost also settles in low pockets where air drainage is poor.

Vegetation and Wildlife

Natural vegetation has been modified or replaced over much of Adams County by agriculture. The climate is too dry to support forest vegetation, and the native plant cover falls into two general range types. Drier, rougher rangeland along the east-west coulees in the north-central part of the county and in the southeast corner is predominantly covered by sagebrush-grass vegetation. Principal shrubs and browse plants are sagebrush, rabbitbrush, and antelope bitterbrush. Major grasses include bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, needle-and-thread grass, and squirreltail. Higher elevation rangeland in the eastern part of the county

Table 8. Temperature Data: Average Daily Maximum, Average Daily Minimum, Daily Mean, and Highest and Lowest Temperatures Each Month, Adams County.

Station 1/		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Hatton SE 1931-1960	Av. Max.	35.0	41.8	53.2	64.3	73.7	80.3	90.8	88.2	78.9	64.1	46.3	38.2	62.9
	Av. Min.	21.2	25.5	30.6	35.3	41.8	47.7	53.0	51.0	45.2	37.2	29.9	26.0	37.0
	Mean	28.1	33.6	41.9	49.8	57.7	64.0	71.9	69.6	62.1	50.7	37.8	32.1	49.9
	Highest	59	65	77	90	100	105	110	105	102	90	68	62	110
	Lowest	-28	-30	7	12	24	28	37	34	21	6	-10	-6	-30
Lind Experiment Station 1931-1960	Av. Max.	34.2	40.8	52.0	63.4	73.0	79.1	89.6	87.0	78.0	63.8	45.4	37.4	62.0
	Av. Min.	21.3	25.6	31.0	35.8	42.4	48.5	54.0	52.6	46.5	38.2	29.6	25.9	37.6
	Mean	27.8	33.2	41.5	49.6	57.7	63.8	71.8	69.8	62.3	51.0	37.5	31.7	49.8
	Highest	58	64	76	90	100	104	111	104	101	91	67	60	111
	Lowest	-26	-25	9	11	23	29	37	36	22	6	-10	-9	-26
Othello 1942-1960	Av. Max.	34.9	43.5	53.6	64.9	74.3	80.8	91.9	88.2	80.2	64.5	46.3	37.6	63.3
	Av. Min.	20.1	25.5	29.7	36.2	44.2	50.2	55.8	53.7	47.1	38.1	28.3	24.8	37.8
	Mean	27.5	34.5	41.7	50.6	59.3	65.5	73.5	71.0	63.7	51.3	37.3	31.2	50.6
	Highest	60	63	79	88	99	103	108	107	102	91	68	63	108
	Lowest	-26	-26	6	16	23	31	34	36	27	15	-8	-9	-26
Ritzville 1931-1960	Av. Max.	33.8	40.0	51.1	62.3	71.6	78.5	88.9	86.9	77.9	63.6	45.2	37.4	61.4
	Av. Min.	20.2	24.2	30.1	35.2	41.9	47.6	53.2	51.7	46.2	37.5	28.6	25.0	36.8
	Mean	27.0	32.1	40.6	48.8	56.8	63.1	71.1	69.3	62.1	50.6	36.9	31.2	49.1
	Highest	58	62	75	90	99	105	110	106	101	93	67	60	110
	Lowest	-23	-24	9	12	22	29	33	36	22	5	-10	-7	-24
Ruff 3SW 1918-1955 (Grant Co.)	Av. Max.	34.9	41.3	53.5	65.2	73.2	80.2	90.1	88.3	79.1	64.4	46.2	37.9	62.9
	Av. Min.	19.7	23.6	29.0	35.4	41.8	47.7	52.9	51.2	45.6	37.4	28.2	23.8	36.4
	Mean	27.3	32.5	41.3	50.3	57.5	64.0	71.5	69.8	62.4	50.9	37.2	30.9	49.7
	Highest	57	63	79	92	101	104	112	106	104	92	67	60	112
	Lowest	-26	-31	1	15	24	27	34	32	22	5	-10	-8	-31
Sprague 1931-1960 (Lincoln Co.)	Av. Max.	34.3	40.5	51.0	62.0	69.9	77.6	88.0	85.5	76.9	63.1	45.9	37.8	61.0
	Av. Min.	19.1	23.2	28.9	34.6	40.8	46.6	51.7	49.0	43.2	35.9	28.0	24.1	35.4
	Mean	26.7	31.9	40.0	48.3	55.4	62.1	69.9	67.3	60.1	49.5	37.0	31.0	48.2
	Highest	57	64	75	88	99	100	109	103	100	92	72	62	109
	Lowest	-31	-33	0	19	21	30	33	33	20	13	-15	-8	-33

1/ Numbers and letters following names indicate distance in miles and direction from the town to the station.

Source: U. S. Weather Bureau, Climatological Office.

supports a bunchgrass type dominated by bluebunch wheatgrass, Sandberg bluegrass, and Idaho fescue.

Adams County offers good upland bird and waterfowl hunting. Hunters took 21,360 pheasants and 17,510 ducks during the 1962 season, along with 770 geese. Irrigation, production of forage crops, and creation of edge cover between cultivated and noncultivated areas have generally benefited small game populations. The county supports a small deer herd; 20 were taken during the 1962 season.

Table 9. Probability of Freezing Temperatures, Adams County.

Station	Temp. (F.)	Probability — Spring					Probability — Fall					Growing Season Mean Length (Days)
		90%	75%	50%	25%	10%	10%	25%	50%	75%	90%	
Hatton SE	32	Apr 24	May 5	May 19	Jun 1	Jun 14	Sep 8	Sep 19	Oct 1	Oct 13	Oct 24	135
	28	Apr 3	Apr 15	Apr 29	May 13	May 24	Sep 21	Oct 1	Oct 14	Oct 26	Nov 6	168
	24	Mar 6	Mar 18	Apr 1	Apr 14	Apr 26	Oct 2	Oct 13	Oct 25	Nov 6	Nov 17	207
	20	Jan 29	Feb 17	Mar 3	Mar 17	Mar 29	Oct 24	Nov 4	Nov 16	Nov 28	Dec 11	258
	16	—	Jan 29	Feb 14	Feb 28	Mar 13	Nov 5	Nov 16	Dec 1	Dec 16	—	290
Lind Exp. Sta.	32	Apr 19	May 1	May 14	May 27	Jun 8	Sep 11	Sep 22	Oct 4	Oct 16	Oct 27	143
	28	Mar 24	Apr 6	Apr 19	May 2	May 15	Sep 23	Oct 4	Oct 16	Oct 28	Nov 8	180
	24	Feb 25	Mar 10	Mar 23	Apr 5	Apr 17	Oct 8	Oct 19	Oct 31	Nov 12	Nov 22	222
	20	Jan 29	Feb 16	Mar 3	Mar 17	Mar 29	Oct 22	Nov 2	Nov 14	Nov 27	Dec 9	256
	16	—	Jan 29	Feb 16	Mar 2	Mar 15	Nov 6	Nov 17	Dec 1	Dec 17	—	288
Othello	32	Apr 11	Apr 22	May 7	May 21	Jun 2	Sep 12	Sep 23	Oct 5	Oct 17	Oct 28	151
	28	Apr 1	Apr 14	Apr 26	May 11	May 22	Sep 27	Oct 5	Oct 18	Oct 30	Nov 9	175
	24	Mar 9	Mar 21	Apr 4	Apr 18	Apr 30	Oct 5	Oct 16	Oct 28	Nov 10	Nov 21	207
	20	Feb 15	Feb 28	Mar 13	Mar 26	Apr 8	Oct 17	Oct 28	Nov 9	Nov 23	Dec 8	241
	16	Jan 27	Feb 12	Feb 24	Mar 13	Mar 24	Oct 23	Nov 3	Nov 15	Dec 1	—	263
Ritzville	32	Apr 22	May 4	May 17	May 31	Jun 12	Sep 8	Sep 19	Oct 1	Oct 13	Oct 24	137
	28	Mar 31	Apr 12	Apr 26	May 9	May 22	Sep 24	Oct 5	Oct 17	Oct 29	Nov 9	174
	24	Mar 3	Mar 15	Mar 28	Apr 11	Apr 22	Oct 6	Oct 17	Oct 29	Nov 10	Nov 21	215
	20	Feb 1	Feb 15	Mar 1	Mar 14	Mar 26	Oct 23	Nov 3	Nov 16	Nov 28	Dec 11	260
	16	—	Feb 1	Feb 18	Mar 4	Mar 16	Nov 2	Nov 13	Nov 26	Dec 9	Dec 29	281
Ruff (Grant Co.)	32	Apr 28	May 9	May 23	Jun 5	Jun 17	Sep 4	Sep 15	Sep 27	Oct 9	Oct 20	127
	28	Apr 10	Apr 23	May 6	May 19	Jun 1	Sep 17	Sep 28	Oct 10	Oct 22	Nov 2	157
	24	Mar 9	Mar 20	Apr 3	Apr 17	Apr 29	Oct 3	Oct 14	Oct 26	Nov 7	Nov 18	206
	20	Feb 12	Feb 24	Mar 9	Mar 23	Apr 4	Oct 15	Oct 26	Nov 7	Nov 19	Nov 30	243
	16	—	Feb 1	Feb 20	Mar 6	Mar 19	Nov 4	Nov 15	Nov 27	Dec 11	—	280
Sprague (Lincoln Co.)	32	Apr 22	May 4	May 17	May 30	Jun 11	Aug 29	Sep 11	Sep 23	Oct 6	Oct 16	129
	28	Apr 4	Apr 15	Apr 29	May 12	May 24	Sep 15	Sep 26	Oct 8	Oct 20	Oct 31	162
	24	Mar 10	Mar 22	Apr 4	Apr 18	Apr 30	Oct 3	Oct 13	Oct 26	Nov 8	Nov 18	205
	20	Feb 16	Feb 28	Mar 13	Mar 27	Apr 8	Oct 14	Oct 25	Nov 6	Nov 19	Nov 29	238
	16	Jan 24	Feb 9	Feb 23	Mar 8	Mar 20	Oct 23	Nov 4	Nov 16	Dec 2	—	266

To illustrate the data in the table, we find that the 50 percent probability of a 32° spring freeze for Hatton SE is May 19. But there is also a 25 percent chance (1 year in 4) that a 32° freeze will occur as late as June 1, and 10 percent chance as late as June 14.

Source: U.S. Weather Bureau, Climatological Data - Washington, 1962.

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